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NOMENCLATURAL NOTES FOR THE NORTH AMERICAN FLORA - V

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ABSTRACT

The authorship of *Actinostachys pennula* (Sw.) Hook., *Athyrium alpestre* (Hoppe) Milde, and *Equisetum* x *trachyodon* (A. Braun) W.D.J. Koch and the taxonomy of *Athyrium distentifolium* Tausch *ex* Opiz and *Athyrium americanum* (Butters) Maxon are discussed. The name *Equisetum* x *trachyodon* is replaced by *Equisetum* x *mackaii* (Newm.) Brichan, and the name *Phyllitis scolopendrium* (L.) Newm. var. *emarginata* Fern. *ex* Boivin is considered to be a *nomen nudum*. Ten new combinations are proposed: **Antrophyum intramarginale** (Baker *ex* Jenman) Kartesz & Gandhi; **Asplenium scolopendrium** L. var. **americanum** (Fern.) Kartesz & Gandhi; **Huperzia x bartleyi** (Cusick) Kartesz & Gandhi; **Huperzia x buttersii** (Abbe) Kartesz & Gandhi; **Huperzia x helleri** (Herter) Kartesz & Gandhi; **Huperzia mannii** (Hillebr.) Kartesz & Gandhi; **Huperzia occidentalis** (Clute) Kartesz & Gandhi; **Huperzia x serrata** (Thunb. *ex* Murray) Trevisan var. **dentata** (Hillebr.) Kartesz & Gandhi; **Lycopodiella cernua** Pichi Sermolli var. **curvata** (Sw.) Kartesz & Gandhi; and **Pecluma camptophyllaria** (Fee) M. Price ssp. **abbreviata** (Evans) Kartesz & Gandhi.

KEY WORDS: Floristics, Nomenclature, Ferns, Pteridophyta, Aspleniaceae, Dryopteridaceae, Equisetaceae, Lycopodiaceae, Polypodiaceae, Schizaeaceae, Vittariaceae, *Actinostachys*, *Antrophyum*, *Asplenium*, *Athyrium*, *Equisetum*, *Huperzia*, *Lycopodiella*, *Lycopodium*, *Pecluma*, *Phyllitis*, *Polypodium*, *Polytaenium*, and *Vittaria*.

Introduction

Continuing with the "NOMENCLATURAL NOTES FOR THE NORTH AMERICAN FLORA" (Kartesz & Gandhi 1989, 1990a, 1990b, 1990c), a fifth note in the series is presented here in the hope of advancing our understanding of North American plant names.

PTERIDOPHYTES

Over the past few decades, our understanding of pteridophyte characteristics (including habit, habitat, external morphology, anatomy, chromosome number, spore and gametophyte structure, and hybridization) has increased dramatically. The application of modern techniques, such as genome analysis, isozyme gel electrophoresis, and chloroplast DNA studies have further advanced our knowledge of fern evolution. The rapid accumulation of systematic data has led to significant changes in pteridophyte classification, including splitting of large, heterogeneous genera and lumping of smaller, homogenous ones. For the North American flora, we have attempted to follow most of the revisions that we consider to be appropriate. In this connection, we provide the following taxonomical and nomenclatural notes.

ASPLENIACEAE
Asplenium and *Phyllitis*

According to Lellinger (1985), the genus *Phyllitis* Hill. comprises about eight species, mostly found in the tropics and subtropics (excluding South America). He remarked that with its double sori and unique lamina shape, *Phyllitis* can be differentiated from all the North American species of the genus *Asplenium* L. However, these two genera hybridize freely in Europe suggesting that they may be more closely related than some of the genera traditionally included within *Asplenium*. Rather than recognizing interbreeding genera, we concur with Proctor (1989, p. 217) that *Asplenium* is a large, homogenous genus that "is not readily split into discontinuous subgeneric groups, ..." Hence, we recognize *Asplenium* in the broad sense (including *Phyllitis*) for the North American flora and propose the following new combination for the American hart's-tongue.

Asplenium scolopendrium L. var. americanum (Fern.) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Phyllitis scolopendrium* (L.) Newm. var. *americana* Fern., Rhodora 37:220. 1935. TYPE: CANADA. Ontario: Grey Co., Inga Falls, 19 Jun 1934, *Fernald, Thompson, & Wright s.n.* (GH).

Phyllitis scolopendrium (L.) Newm. var. *emarginata* Fern. *ex* Boivin, Nat. Canad. 93:268. 1966. *nom. nud.*

DRYOPTERIDACEAE

Athyrium alpestre and *A. distentifolium*

Fuchs (1974) presented a detailed discussion on the correct name of the European alpine lady fern. Until 1956, this fern was known by the name *Athyrium alpestre*, which was based on *Aspidium alpestre* Hoppe (1805). The authorship of the name *Athyrium alpestre* was credited to several authors, including "Rylands *ex* Moore" and "(Hoppe) Rylands" (Fernald 1929). However, Fuchs (Pp. 181 and 189) indicated "(Hoppe) Milde" to be the author. In 1956, E. Janchen corrected the name *Athyrium alpestre* (Hoppe) Milde (1867); non *Athyrium alpestre* De Clairv. (1811) to *Athyrium distentifolium* (fide Fuchs; p. 182).

Although *Athyrium alpestre* (Hoppe) Milde and *Athyrium alpestre* De Clairv. share the same specific epithet, these two names were based on different types. According to Fuchs (1974, pp. 181 and 187-188), *Athyrium alpestre* De Clairv. was based on a form of *A. filix-femina* (L.) Roth, whereas the name *Athyrium alpestre* (Hoppe) Milde was based on *Aspidium alpestre* Hoppe (1805), which is possibly a superfluous name (Fuchs 1974, pp. 186-187). Regarding De Clairville's taxon, we quote from Fuchs (1974, pp. 187-188): "The taxonomic position of this *Athyrium alpestre* Clairv., taxon entirely independent from *Aspidium alpestre* Hoppe, is proven by a specimen in De Clairville's own herbarium now at Z (cf. pl. IIb). This herbarium specimen is labeled in De Clairville's handwriting: '*Athyrium alpestre - Polypodium.* Linn. hall. no. 1703 Les bois montagneux,' and belongs clearly to *Athyrium Filix-femina* (L., sub *Polypodio*) Roth, as someone had recognized already earlier when annotating De Clairville's specimen with the note 'appartient a *Aspl. filix-foemina*"'

Lellinger (1981, p. 91) rejected Fuchs' analysis and concluded that *Athyrium alpestre* De Clairv. was indirectly based on *Aspidium alpestre* Hoppe. With this assertion, he reinstated the name "*Athyrium alpestre* (Hoppe) De Clairville." The following is quoted from Lellinger: "According to R.M. Tryon, Jr. (pers. comm.), De Clairville's work is an excursion flora in which the introduction states that it is not a technical work. De Clairville's intent was not to name a

new species, but to transfer Hoppe's name. Therefore, it seems clear that the epithet *alpestre* (Hoppe) de Clairville should be reinstated."

With reference to Tryon's comments on De Clairville's excursion flora, we invoke ICBN Art. 29.4 (Greuter 1988). According to this article, new names that were proposed in nonscientific journals prior to 1 Jan 1953, must be considered to be effectively published. Hence, De Clairville's excursion publication, not being a technical work, is irrelevant. Moreover, we emphasize the fact that the name *A. alpestre* De Clairv. is associated with a type specimen, extant at Z (*fide* Fuchs 1974, p. 188). We conclude that Lellinger's rejection of Fuchs' analysis was unjustified, and thus we follow Fuchs' treatment of this species.

Athyrium distentifolium Tausch *ex* Opiz, Kratos 2(1):14, no. 41. 1820. TYPE: "Tausch ...'no. 1838 *Polypodium rhaeticum* L. Brunberg *in Riesengeb.*"' (*fide* Fuchs 1974).

Aspidium alpestre Hoppe, Neues Bot. Taschenb. Anfanger Wiss. Apothekerkunst. 216, no. 11. 1805, *nom. superfl. Athyrium alpestre* Milde, *Fil. Eur.* 53, no. 2. 1867, *non* De Clairv. 1811.

Athyrium americanum

In his study of North American ferns, Butters (1917, pp. 203-205) stated that the common arctic alpine fern of North America, previously assigned to the European species *Athyrium alpestre* (Hoppe) "Rylands *ex* Moore" (= *A. distentifolium* Tausch *ex* Opiz), must be considered as a distinct taxon. He characterized the American expression as follows: "ultimate segments of the fronds conspicuously narrower, and more widely separated from one another, and the sori ...(0.5-0.7 mm. in diameter ...), submarginal and protected by a reflexed tooth of the pinnule (false indusium). Careful study has failed to disclose any vestige of indusium." In contrast, the sori in *A. distentifolium* are 0.75-1.0 mm in diameter and have vestigial indusia.

Butters noted the existence of intermediates between the American and European expressions and recognized the American expression to be a new variety: *Athyrium alpestre* (Hoppe) Rylands *ex* Moore var. *americanum* Butters. However, Maxon (1918, pp. 120-121) stated that the invariable absence of indusia in the American expression was a substantiating character of some worth. He further argued that differences in gross structure, such as the strict, skeletonlike aspect of the American expression with its narrow, oblique, widely separated pinna segments (vs. leafy European plant with spreading segments

that are more broadly attached) and with its oblique, elongate deltoid pinnae (vs. spreading. oblong-acuminate pinnae of the European plant) warranted specific recognition. Although Lellinger (1981) recognized this fern at subspecific rank (*Athyrium alpestre* [Hoppe] Milde ssp. *americanum* [Butters] Lellinger), Dr. M.D. Windham (Univ. of Utah; pers. comm.) argues that the morphological features of the American alpine lady fern are sufficient for specific recognition. Our observation of herbarium material of the American element supports Windham's treatment and we provide the following references.

Athyrium americanum (Butters) Maxon, Amer. Fern J. 8:120. 1918. BASIONYM: *Athyrium alpestre* (Hoppe) Milde var. *americanum* Butters, Rhodora 19:204. 1917. *Athyrium distentifolium* Tausch *ex* Opiz var. *americanum* (Butters) Cronq., Univ. Wash. Publ. Biol. 17(1):63. 1969. *Athyrium distentifolium* Tausch *ex* Opiz ssp. *americanum* (Butters) Hultén, Bot. Notiser 126:462. 1973. *Athyrium alpestre* (Hoppe) Milde ssp. *americanum* (Butters) Lellinger, Amer. Fern J. 71:91. 1981. LECTOTYPE (*vide* Maxon 1918): CANADA. British Columbia: Rogers Pass, 23 Aug 1904, *Heacock* (in Shaw's Selkirk Flora no. 554) (GH).

EQUISETACEAE

Equisetum x *mackaii* and *E.* x *trachyodon*

The authorship of *Equisetum* x *trachyodon* has been generally assigned to A. Braun. Since this taxon is considered to be a hybrid, we researched the original literature to determine whether Braun proposed it as a species or as a hybrid. Braun (1838, p. 160) proposed "*Equisetum brachyodon* - subspecies nova *E. hiemalis*," which was a *nomen nudum*. Subsequently, Braun (1839, p. 305) corrected the subspecific epithet to *trachyodon* ("Ueber ein neues *Equisetum* [*Equisetum trachyodon*]"), and discussed its habit, habitat, and few diagnostic characters (pp. 305-306). Although his usage of the name "*E. trachyodon*" suggests that he proposed a new species, he did not specifically state its rank on these two pages. However, on p. 308, he explicitly indicated that he treated "*E. trachyodon*" as a subspecies of *E. hiemale* ("*E. hiemale* cujus subspecies: 1) *E. ramosum* ...2) *E. hiemale* (genuinum) ...3) *E. trachyodon*; 4) *E. variegatum*"). It was an accepted practice in Braun's time to indicate the subspecies rank as follows: "*E. hiemale* ssp. *E. trachyodon*" A. Braun. In present practice, the above citation must be altered, and cited as *E. hyemale* ssp. *trachyodon* A. Braun (ICBN, Art. 24.4). Even Hauke (1963) and Reed (1971) stated that Braun described his taxon at the subspecific rank, but these authors did not attempt to correct the nomenclature.

It is evident from Braun's classification that he proposed *Equisetum trachyodon* at subspecific rank rather than at specific rank. With this established, we searched for the earliest reference (subsequent to Braun's publication) treating *E. trachyodon* at specific rank, and concluded that W.D.J. Koch (1845) was first to do so, and thus Koch inadvertently elevated Braun's subspecies to species. Following the ICBN Art. 32.4, Ex. 5, the authorship of this taxon at the species rank is: *E. trachyodon* (A. Braun) W.D.J. Koch.

Koch cited *Equisetum mackaii* as a synonym of *E. trachyodon*, as did Bentham (1892, p. 554), Broun (1938), Hauke (1963), and Reed (1971). Although Koch, Bentham, and Broun attributed the name *E. mackaii* to Newman, he used the epithet *mackaii* at varietal rank, and it was Brichan, who ultimately elevated Newman's variety to specific rank. We concur with the above authors in considering *E. mackaii* and *E. trachyodon* to be conspecific, and conclude that, at specific rank, *E. mackaii* clearly has priority over *E. trachyodon*. We provide the following references:

Equisetum x *mackaii* (Newm.) Brichan, Phytologist 1:369. 1843 (Nov 1842). BASIONYM: *Equisetum hyemale* L. var. *mackaii* Newm., Phytologist 1:305. 1843 (Sep 1842). TYPE: NORTHERN IRELAND. Belfast, Colin Glen, Aug 1833, *Mackay & Whitla* (?K).

Equisetum hyemale L. ssp. *trachyodon* A. Braun, Flora 20(22):308. 1839. *Equisetum trachyodon* (A. Braun) W.D.J. Koch, *Syn. Fl. Germ. Helv.*, ed. 2. 3:967. 1845. TYPE: Ad Rhenum Prope Carlsruhe, Aug 1837, *Braun* (B) (*fide* Reed 1971).

LYCOPODIACEAE

Huperzia, *Lycopodiella*, *Lycopodium*

In modern treatments of the genus *Lycopodium* L. *sensu lato*, several segregates, such as *Diphasium* C. Presl, *Diphasiastrum* Holub, *Huperzia* Bernh., *Lateristachys* Holub, *Lepidotis* P. Beauv., *Lycopodiastrum* Holub, *Lycopodiella* Holub, *Palhinhaea* Vascon. & Franco, *Phlegmariurus* (Herter) Holub, *Pseudodiphasium* Holub, *Pseudolycopodiella* Holub, and *Pseudolycopodium* Holub are recognized at generic ranks. Based on morphological, anatomical, phytochemical (Towers & Maass 1965; Pedersen & Ollgaard 1982), and chromosomal number analysis, Ollgaard (1987) recognized three genera in the *Lycopodium* complex: *Huperzia*, *Lycopodiella*, and *Lycopodium*. He (1989) also provided an index of the family Lycopodiaceae. Based on our observation, we concur with Ollgaard's analysis and recognize three genera for North America. Seven new combinations are thus proposed in *Huperzia* and *Lycopodiella*.

KEY TO THE GENERA

1. Stems simple or isodichotomously branched, the main stems of determinate growth; strobili present or absent; sporophylls sessile, paleate, deciduous or persistent; sporangia axillary; spore surface foveolate-fossulate; plants epiphytic and often pendent, or terrestrial, confined to tropics or widespread. ..... *Huperzia*

1′ Stems anisodichotomously branched, the main stems of indeterminate growth, creeping, with erect, lateral branches of determinate growth; strobili present; sporophylls peltate or nearly so, deciduous; sporangia axillary or on sporophyll stalks; spore surface rugulate or reticulate; plants terrestrial, widespread. 2

2. Strobilus solitary, erect and subsessile-pedunculate or deflexed and sessile; spore surface rugulate; leaves di- or monomorphic. .... *Lycopodiella*

2′ Strobili usually in 1 or 2 pairs, erect and sessile or pedunculate, or deflexed and pedunculate; spore surface reticulate; leaves monomorphic. ..... *Lycopodium*

Huperzia

Huperzia Bernhardi, J. Bot. (Schrader) 1800(2):126. 1801. *Plananthus* P. Beauv. *ex* Mirbel *in* Lam. & Mirbel, Hist. Nat. Veg. 3:476. 1802, *nom. superfl. Urostachys* Herter, Beih. Bot. Centralbl. 39(2):249. 1922, *nom. superfl.* All with *Lycopodium selago* L. as lectotype (*vide* Rothmaker, Feddes Repert. Spec. Nov. Regni Veg. 54:59. 1944).

Phlegmariurus Holub, Preslia 36:21. 1964. TYPE: *Lycopodium phlegmaria* L.

Sporangia with sinuate, lignified side cell walls, the dehiscence isovalvate at maturity; gametophytes cylindrical, holosaprophytic, with paraphyses and long archegonia possessing persistent necks; main stem stele mostly radial; stem sclerenchyma nonlignified and peripheral; main root steles possessing crescent shaped xylem; mucilage canals absent; an ester of dihydrocaffeic acid often found; syringic acid not reported; chlorogenic acid, not the dominant

phenol; n = 67, 68, 128, 130-140, 165-170 (*fide* Bruce 1976; Ollgaard 1987). Additional characters are provided in the key.

Holub (1964) proposed the genus *Phlegmariurus* as a segregate from *Huperzia*. In this article, he argued that differences in habit, gametophyte, spore type, and basic chromosome number warranted generic distinction. Subsequently, in his 1985 article, Holub stated that further studies on these two groups demonstrated that such differences were not consistent; hence, he abandoned the genus *Phlegmariurus* and merged it with *Huperzia*. Based on our work, the following new combinations are proposed in the genus *Huperzia*.

Huperzia x bartleyi (Cusick) Kartesz & Gandhi, *comb. nov.* (*H. lucidula* [Michx.] Trevisan x *H. porophila* [Lloyd & Underwood] Holub). BASIONYM: *Lycopodium bartleyi* Cusick, Amer. Fern J. 77:100. 1987. TYPE: U.S.A. Ohio: Hocking Co., 18 Mar 1987, *Cusick 26204* (HOLOTYPE: OS).

Huperzia x buttersii (Abbe) Kartesz & Gandhi, *comb. nov.* (*H. lucidula* [Michx.] Trevisan x *H. selago* [L.] Mart. & Schrank). BASIONYM: *Lycopodium buttersii* Abbe, Rhodora 55:91. 1953. TYPE: U.S.A. Minnesota: Cook Co., 11 Jul 1938, *Butters, Burns, & Hendrickson 111a* (MIN).

Huperzia x helleri (Herter) Kartesz & Gandhi, *comb. nov.* (*H. serrata* [Thunb. *ex* Murray] Trevisan x *H. somai* [Hayata] Ching) BASIONYM: *Lycopodium helleri* Herter, Bot. Jahrb. Syst. 43 (Beiblat. no. 98, Heft 1 & 2):43. 1909. TYPE: U.S.A. Hawaii: Sandwich Islands, Oahu, Konahuanui, 1895, *Heller s.n.* (G, P).

Huperzia mannii (Hillebr.) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Lycopodium phlegmaria* L. var. *mannii* Hillebr., *Fl. Hawaiian Isl.* 645. 1888. *Lycopodium mannii* (Hillebr.) Skootsb., Acta Horti Gothob. 15:131-132. 1942. TYPE: U.S.A. Hawaii: mountains above Maalaea Bay, Maui, *Mann Enum. no. 656* (HOLOTYPE: CU).

Huperzia occidentalis (Clute) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Lycopodium lucidulum* Michx. forma *occidentalis* Clute, Fern Bull. 11:13. 1903. TYPE: U.S.A. Washington: Near the base of Mt. Rainier, 15 Aug 1901, *Fleet, s.n.* (NY).

Huperzia serrata (Thunb. *ex* Murray) Trevisan var. **dentata** (Hillebr.) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Lycopodium serratum* Thunb. *ex* Murray var. *dentatum* Hillebr., *Fl. Hawaiian Isl.* 642-643. 1888. TYPE: U.S.A. Hawaii: high mountains of Kauia, ?*Hillebrand* (?B).

Lycopodiella

Lycopodiella Holub, Preslia 36:22. 1964. TYPE: *Lycopodium inundatum* L.

Lepidotis auct. non Mirbel

Palhinhaea Vascon. & Franco, Bol. Soc. Broter., II. 41:24. 1967. TYPE: *Lycopodium cernuum* L.

Lateristachys Holub, Folia Geobot. Phytotax. 18:440. 1983. TYPE: *Lycopodium laterale* R. Br.

Pseudolycopodiella Holub, Folia Geobot. Phytotax. 18:441. 1983. TYPE: *Lycopodium carolinianum* L.

Sporangia with straight, nonlignified side cell walls, the dehiscence mostly anisovalvate at maturity; gametophyte tuberous with multicellular lobes, hemisaprophytic, with short archegonia possessing ephemeral necks, lacking paraphyses; main stem stele mostly radial; stem sclerenchyma lignified and subperipheral or close to endodermis; main root steles possessing crescent shaped xylem; both basal and veinal mucilage canals often present; chlorogenic acid, the dominant phenol; dihydrocaffeic acid and syringic acid not reported; n = 35, 68, 70, 78, 104, 108, 110, 136, 156, 165, 208 (*fide* Bruce 1976; Ollgaard 1987). Additional characters are provided in the key.

Lycopodiella cernua (L.) Pichi Sermolli var. **curvata** (Sw.) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Lycopodium curvatum* Sw., J. Bot. (Schrader) 1800(2):116. 1801. TYPE: ?JAMAICA. ?*Swartz.*

Lycopodium

Lycopodium L., *Sp. Pl.* 2:1100. 1753. LECTOTYPE (*vide* Britton *in* Britton & Brown, *Ill. Fl. N. U.S.*, ed. 2. 1:43. 1913): *Lycopodium clavatum* L.

Lepidotis P. Beauv. *ex* Mirbel *in* Lam. & Mirbel, *Nat. Hist. Veg.* 3:477. 1802. LECTOTYPE (*vide* Pichi Sermolli, Webbia 26:145. 1971.): *Lycopodium clavatum* L.

Diphasiastrum Holub, Preslia 47:104. 1975. TYPE: *Lycopodium complanatum* L.

Diphasium Rothm., Feddes Repert. Spec. Nov. Regni Veg. 54:64. 1944. TYPE: *Lycopodium jussiaei* Poir.

Lycopodiastrum Holub, Folia Geobot. Phytotax. 18:440. 1983. TYPE: *Lycopodium casuarinoides* Spring.

Pseudodiphasium Holub, Folia Geobot. Phytotax. 18:440. 1983. TYPE: *Lycopodium volubile* G. Forster.

Pseudolycopodium Holub, Folia Geobot. Phytotax. 18:441. 1983. TYPE: *Lycopodium densum* Labill., *non* Lam.

Sporangia with sinuate, lignified side cell walls, the dehiscence isovalvate at maturity; gametophytes carrot or convoluted button shaped, holosaprophytic, with long archegonia possessing persistent neck, lacking paraphyses; main stem steles arranged in fixed parallel bands; stem sclerenchyma nonlignified, close to the endodermis; main root steles similar to the stem steles; basal mucilage canals generally present; veinal mucilage canals absent; dihydrocaffeic acid not reported; syringic acid reported; chlorogenic acid, not the dominant phenol; n = 23-34, 90 (*fide* Bruce 1976; Ollgaard 1987). Additional characters are provided in the key.

POLYPODIACEAE

Pecluma and *Polypodium*

Lellinger (1981) considered the *Polypodium pectinatum* L. – *plumula* Humb. & Bonpl. *ex* Willd. group to be sharply distinct from other polypodies and remarked that the group "deserved to be placed in a subgenus of its own:" *Polypodium* subgenus *Pectinatum* Lellinger. Price (1983) elevated this subgenus to the generic rank as *Pecluma* and transferred 28 *Polypodium* species to the new genus, including *Polypodium camptophyllarium* Fee. Following Price's treatment, we consider that *Pecluma*, with its short rhizomes, pectinate lamina, and linear lamina segments (1-8 mm wide), can be segregated from the genus *Polypodium*, and thus transfer *Polypodium camptophyllarium* Fee var. *abbreviatum* Evans to *Pecluma*. The var. *abbreviata* is found in Puerto Rico.

Pecluma camptophyllaria (Fee) M. Price ssp. **abbreviata** (A.M. Evans) Kartesz & Gandhi, *stat. & comb. nov.* BASIONYM: *Polypodium camptophyllarium* Fee var. *abbreviatum* Evans, Ann. Missouri Bot. Gard. 55:256. 1969. TYPE: PERÚ. *Herrera 872* (US).

SCHIZAEACEAE
Actinostachys pennula

Christensen (1906) cited the authorship of the name *Actinostachys pennula* as Hooker (1842), whereas Proctor (1989) attributed the name to Hooker & Bauer. The name in question was published in *Genera Filicum* (also called *Illustrations of the Ferns and Other Allied Genera*). On the title page of the publication, we found the following information: "from the original coloured drawings of F. Bauer, with additions and descriptive letterpress by W.J. Hooker." It is clear that Bauer should be cited as the senior author of this work. The dedication and preface were by Hooker. From the preface, we quote the following: "Whatever may be merits of the present publication, it will be seen that they are entirely due to the distinguished Natural History Painter, whose name appears upon the plates ..."

There are 120 plates in this publication, each plate with notes by Hooker. The copy found at the Botany Library (NCU) showed Bauer's name for plates 1-40 and 50-51; the painter's name (Bauer) is not seen for other plates. After analyzing the contents, we have concluded that if the new taxa were to be validated by Bauer's illustration, then Bauer alone should be the author of such taxa. Conversely, if taxa were to be validated by Hooker's notes, then Hooker should be the author.

The taxon *Actinostachys pennula* was illustrated on plate 111-A, accompanied by Hooker's notes. In this publication, *A. pennula* was not a new species, but rather, a new combination based on *Schizea pennula* Sw. Hooker cited the basionym and used the name *A. pennula*; thus, a new combination was properly made, which met the requirements of ICBN Art. 33.2, for new combinations proposed prior to Jan 1953. Since Bauer's illustration is secondary here, we conclude that Hooker is the sole author for the new combination:

Actinostachys pennula (Sw.) Hook., *Gen. Fil.* t. 111. 1842.

VITTARIACEAE
Antrophyum, *Polytaenium*, and *Vittaria*

The genera *Antrophyum* Kaulf., *Polytaenium* Desv., and *Vittaria* J.E. Sm. belong to the family Vittariaceae. In both *Antrophyum* and *Vittaria*, paraphyses are present and spores have either trilete or monolete apertures, but in *Antrophyum* the sori are usually multiple on the anastomosing veins, whereas in *Vittaria*, the sori are submarginal and form a single line along each margin.

Polytaenium differs from *Antrophyum* in lacking paraphyses and in possessing a costa (usually extending almost to the apex of the lamina) and trilete apertured spores. In *Antrophyum*, a costa is absent or if present, then usually partially developed. The separation of *Polytaenium* from *Antrophyum* at generic rank has been in dispute. Tryon (1964) and Proctor (1989) recognized its generic status; however, Tryon & Tryon (1982) remarked that *Polytaenium* was not a distinctive genus and treated *Polytaenium* as a subgenus: *Antrophyum* subgenus *Polytaenium* (Desv.) Bened. We concur with Tryon & Tryon in recognizing *Antrophyum* sens. lat. (including *Polytaenium*).

Vittaria intramarginalis Baker *ex* Jenman possesses submarginal sori (as in other vittarias), but soral condition in Vittariaceae is of little importance in determining relationship relative to venation (*fide* Benedict 1907, p. 451, protologue of *Antrophyum lineatum* [Sw.] Kaulf). In *Vittaria*, two submarginal veins are formed by the interlocking of pinnate branches from the axial vein; occasionally, as in the narrow leaved vittarias, the pinnate veins are obscure and the venation consists of three primary longitudinal veins. In contrast, *Antrophyum* usually shows reticulated venation. In *V. intramarginalis*, there are few longitudinal veins that are connected by irregular cross veinlets, and such a venation pattern is comparable to the venation of narrow leaved expressions of *Vittaria*. However, *V. intramarginalis* differs from all other vittarias in lacking paraphyses. It is possible that both *V. intramarginalis* and other vittarias might have had a common ancestor.

Due to the absence of paraphyses in *Vittaria intramarginalis*, Alston (1952) transferred it to *Polytaenium* and made the combination: *Polytaenium intramarginale* (Baker *ex* Jenman) Alston. Tryon & Tryon (1982, p. 359) treated *V. intramarginalis* as a synonym of *A. lineatum*. Initially, Proctor (1982) recognized *V. intramarginalis* at varietal status, but in 1989 (p. 148) remarked that field work in Puerto Rico had convincingly demonstrated that *V. intramarginalis* did not intergrade with *A. lineatum*, had its own allopatric distribution pattern involving different ecological parameters, and hence, deserved specific recognition. We concur with Proctor (1989) in providing specific rank to Baker's plant. The transfer of *V. intramarginalis* to *Antrophyum* necessitates the following new combination.

Antrophyum intramarginale (Baker *ex* Jenman) Kartesz & Gandhi, *comb. nov.* BASIONYM: *Vittaria intramarginalis* Baker *ex* Jenman, J. Bot. 15:266. 1877. *Polytaenium intramarginale* (Baker *ex* Jenman) Alston, Mutisia no. 7:9. 1952. *Polytaenium lineatum* (Sw.) J.E. Sm. var. *intramarginale* (Baker *ex* Jenman) Proctor, Amer. Fern J. 72:114. 1982. TYPE: JAMAICA. 1877, *Jenman 58* (HOLOTYPE: K).

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